

What is claimed is:

1. A method for generating a personal identification number (PIN), made up of a number of N decimal digits, to be used for money cards and other devices requiring security, from a binary number having L digits, in particular from a binary code specific to an individual, wherein the PINs are generated such that they are randomly uniformly distributed over the available number domain.
2. The method as recited in Claim 1, wherein the first n1 digits of the binary number (B) are converted in generally known fashion into a decimal number d1, the predefinable natural number n1 being selected so as to yield a natural number z1 such that the quotient $2^{n1}/(z1*9)$ is close to 1; and the first decimal digit of the PIN receives the value d1 modulo 9; N-1 further groups of further n2 digits of the binary number (B) are converted each time in generally known fashion into N-1 decimal numbers d2 through dN, the predefinable number n2 being selected so as to yield a natural number z2 such that the quotient $2^{n2}/(z2*10)$ is close to 1, to satisfy the condition: $0 \leq 2^{n2} \text{ modulo } 10 < 3$, and the decimal digits 2 through N of the PIN receive the values di modulo 10, i=2 through N.
3. The method as recited in Claim 2, wherein n1 and n2 ≤ 16 are predefined.
4. The method as recited in one of the preceding claims, wherein N=4 is selected.
5. The method as recited in one of the preceding claims, wherein the binary number (B) has the length L=16, N=4 is predefined, and n1=n2=4 are predefined.

6. The method as recited in Claim 1,
wherein the binary number (B) has the length $L=3*n3$, $n3$
groups of three digits of the binary number (B) are
converted in generally known fashion into $n3$ decimal
digits to generate the $n3$ digits of the PIN, $n3$ being a
natural number.
7. The method as recited in Claim 1,
wherein the binary number (B) is fully converted, in
generally known fashion, into a decimal number in order
to generate the PIN, and, if necessary, a correction
value of such kind is added to the resultant decimal
number that the first digit of the decimal number becomes
unequal to zero, the digits of the result forming the
digits of the PIN.
8. The method as recited in Claim 7,
wherein the binary number (B) has a length L of 13, the
generated decimal number has four digits, and a preset
value greater than 999 and smaller than 1807 is added to
the decimal number.
9. The method as recited in Claim 8,
wherein the set of numbers 0 through 8191 is allocated to
 $n5$ subsets $M1, \dots, Mn5$, and a preset value d_i is added to
the generated decimal number if it is an element of the
set M_i , it holding that $999 < d1 < d2 < \dots < dn5 < 1809$, and $n5$
being a natural number.

10. The method as recited in Claim 7,
wherein the binary number (B) has a length L of 16, the
generated decimal number has five digits, and a preset
value greater than 9999 and smaller than 34465 is added
to the decimal number.
11. The method as recited in Claim 10,
wherein the set of numbers 0 through 65535 is allocated
to n_5 subsets M_1, \dots, M_{n_5} , and a preset value d_i is added
to the generated decimal number if it is an element of
the set M_i , it holding that $9999 < d_1 < d_2 < \dots < d_{n_5} < 34465$, and
 n_5 being a natural number.
12. The method as recited in Claim 1,
wherein to generate the first digits of the PIN, the
following steps are executed:
- a pseudo-random number composed of up to 36 hexadecimal
digits is generated from the binary number (B) of length
L;
 - each hexadecimal digit of this number is converted using
one different one out of the 36 possible different
mathematical mappings of hexadecimal digits into the
digits 1 through 9, into a digit of the digits 1 through
9;
 - to even out the probability of the particular PIN digit
occurring, the up to 36 decimal digits of the thus
generated number are linked in a mathematical operation
to form a decimal digit unequal to zero, which represents
the first digit of the PIN;
- and the following steps are executed for the second and each
following digit of the PIN to be generated:
- a pseudo-random number composed of up to 210 hexadecimal
digits is generated from the binary number (B) of length
L;
 - each hexadecimal digit of this number is converted into
one decimal digit using each time one different one out

of the 210 possible mathematical mappings of hexadecimal digits into decimal digits;

- to average out the probability of the particular PIN digit occurring, the up to 210 decimal digits of the thus generated number are linked in a mathematical operation to form a decimal digit, which represents the particular digit of the PIN.

13. The method as recited in Claim 12, wherein the first digit of the PIN is generated in that the up to 36 digits are linked using the group operation of any arbitrary mathematical group of the order 9, and the second and the following digits of the PIN are generated, in that the up to 210 digits are linked using the group operation of any arbitrary mathematical group of the order 10.

14. The method as recited in Claim 13, wherein the additive group of the integers modulo 10 are used to link the up to 210 digits.

15. The method as recited in Claim 13, wherein the multiplicative group of the integers modulo 11 are used to link the up to 210 digits.

16. The method as recited in Claim 13, wherein the group of the symmetric mappings of a regular pentagon (dihedral group) is used to link the up to 210 digits, each of the ten symmetric mappings of this group being assigned a different decimal digit.

17. The method as recited in Claim 16, wherein the digit 0 is assigned to the identity mapping, the digits 1 through 4 to the four rotations about the midpoint of the pentagon, and the digits 5 through 9 to the five reflections about the five axes of symmetry of the pentagon.

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A2

Add
B5